

**PUMP POWER MONITOR SYSTEM AND METHOD**  
**FOR GAIN CONTROL OF OPTICAL AMPLIFIER**

**ABSTRACT OF THE DISCLOSURE**

An optical fiber amplifier system includes an optical fiber adapted for use as an optical wave guide amplifier, and at least one optical pump optically coupled into the optical amplifier, wherein the pump receives both a DC electrical input and an AC electrical input, and wherein the pump provides an optical pump power to the optical fiber having both a DC optical power component and an AC optical power component. The optical fiber amplifier system also includes an optical pump power detector optically coupled to the pump, and at least one controller operatively connected to the pump power detector to determine the DC optical power component of the optical pump power, and wherein the controller adjusts the DC electrical input to the pump based on the DC optical power component.